IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hongwei Kong
Serial No.:	10/822,434
Filed:	April 12, 2004
Group Art Unit:	2686
Examiner:	Loftin, Celeste
Title:	SECTOR SWITCHING DETECTION METHOD

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant now submits its brief in this appeal. A check in the amount of $500.00 is enclosed. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Real Party in Interest

Lucent Technologies, Inc. is the real party in interest.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-19 are pending and on appeal.

Claims 1 and 2 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,873,607 ("the *Hamada* reference").

Claims 16-18 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,799,045 ("the *Brouwer* reference").

Claims 3, 5-7, 9-12 and 14-15 stand rejected under 35 U.S.C. §103 based upon the proposed combination of the *Hamada* reference and United States Published Patent Application No. 2002/0111158 ("the *Tee* reference).

Claims 8 and 13 stand rejected under 35 U.S.C. §103 based upon the combination of the *Hamada* reference, the *Tee* reference and the *Brouwer* reference.

Claim 19 stands rejected under 35 U.S.C. §103 based upon the *Brouwer* reference combined with the *Hamada* reference.

Status of Amendments

There are no unentered amendments.

Summary of Claimed Subject Matter

This invention allows for reliably and accurately detecting a sector switch indication from a mobile device (e.g., a cell phone). As can be appreciated from Figure 1, wireless communication systems serve coverage areas that are divided into cells 101 having one or more sectors 102. (Page 1, lines 17-19)

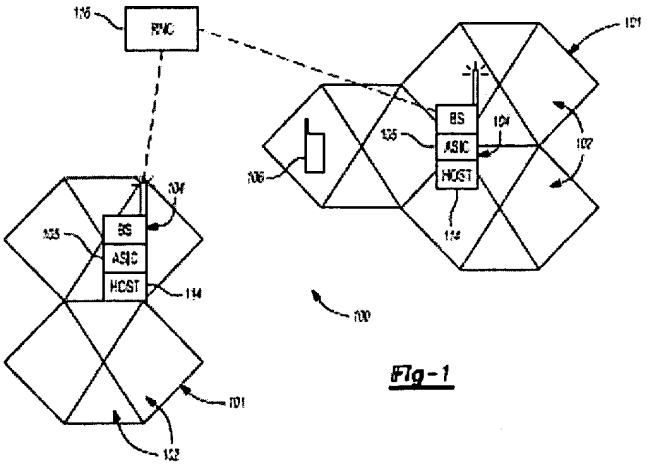

Fig-1

As a mobile device 106 moves from one sector 102 to another, the mobile device 106 chooses which base station 104 or sector 102 among a set of candidate base stations 104 or sectors 102 will provide the best service for that mobile device. The mobile device 106 provides a sector switch indication that identifies the chosen sector 102 or base station 104 that the mobile device prefers for a wireless communication. (Page , lines 26-30)

This invention provides a unique way of reliable and accurately detecting a sector switch indication from a mobile device.

Independent claim 1 recites:

> 1. A method of wireless communication, comprising:
> monitoring a plurality of frames on a channel; and
> detecting a sector switching indicator (SSI) in at least one frame and over a sliding window containing at least two frames.

An example embodiment upon which claim 1 reads is shown in Figures 4 and 5. A frame period is a multiple-slot interval. A mobile device 106 may transmit a sector switching indicator (SSI) in selected consecutive switch indication slots within a frame and will continue for a predetermined number of frames. (Page 8, lines 9-11) A frame-based detection process operates over a single frame period (e.g., 20 ms), detecting whether the mobile device 106 has sent an SSI at any time within that period. (Page 8, lines 26-29) A sliding window-based switch detection process operates over a selected multiple of 20 ms periods (e.g., a multiple of frames). (Page 8, lines 25-26)

Independent claim 5 recites:

> 5. A method of detecting a sector switching indication (SSI), comprising:
> identifying a serving sector;
> identifying at least two active set sectors;
> monitoring a plurality of frames on at least one channel associated with said at least two active set sectors; and
> detecting the SSI in at least one frame and in a sliding window containing at least two frames.

Like claim 1, claim 5 includes monitoring the plurality of frames and detecting a SSI in at least one frame and in a sliding window containing at least two frames. The portions of the specification from page 8 quoted above are equally applicable to an explanation of how claim 5 reads on an example embodiment from the disclosure.

Figure 3 illustrates an example arrangement for identifying a serving sector. In the disclosed example, a process 150 begins by checking whether the current serving sector is known. One example includes sending a signal on a downlink channel from a serving sector 102 to the mobile device 106 and checking for an acknowledgment back from the mobile device. (Page 7, lines 16-20) Identifying at least two active set sectors is accomplished in one example when a plurality of base stations 104 communicate with a radio network controller 116 to indicate the status of the active set sectors 102. (Page 4, lines 20-22) In another example, the active set is evaluated by a base band processing ASIC 105 of a single base station 104. (Page 4, lines 24-25)

Independent claim 16 recites:

> 16. A method of detecting a sector switching indication (SSI), comprising:
>
> conducting a plurality of switch detection decisions in a baseband processor stage, wherein each preliminary switch detection decision corresponds to one of a plurality of active set sectors;
>
> forwarding the plurality of preliminary switch detection decisions to a base station stage;
>
> conducting a second switch detection decision based on the plurality of preliminary switch detection decisions in the base station stage; and
>
> determining whether the SSI has been sent based on the second switch detection decision in the base station stage.

This claim reads on the disclosed examples as follows. The sliding window-based switch detection process is generally responsible for preliminary sector switch detection and can both suppress false alarms and reduce the probability of missed SSIs by accumulating switch detection metrics over an extended time interval. (Page 8, lines 20-23) As shown in Figure 4, a sector switch

detection algorithm begins by starting the sliding window-based switch detection algorithm and the frame-based switch detection algorithm in each sector 104 in the active set (block 200). At the end of each frame period, each sector 102 in the active set will check whether the sliding window-based switch detection algorithm indicates a preliminary switch detection (block 202). (Page 9, lines 19-23)

Figure 5 illustrates how a central entity, such as a host processor 114 or a radio network controller 116 notifies each sector 102 in the active set the identity of the current serving sector (block 204). Each sector 102 in the active set then begins to accumulate its own set of likelihood metrics. (Page 9, lines 24-28)

As shown in the example of Figure 4, the likelihood metrics associated with the sliding window-based switch detection process and the history output from the frame-based switch detection process are communicated to the central entity (i.e., the host processor 114 or the radio network controller 116) (block 226). From this information, the central entity decides whether to declare a switch to a new serving sector based on the combined likelihood metrics from the sectors 102 in the active set (block 228). In one embodiment, the central entity declares a final sector switch detection decision if it receives preliminary sector switch detection determinations from one of the sectors 102 associated with only one base station 104. If the active set sectors 102 correspond with more than one base station, and if more than one base station 104 sends simultaneous reports of the preliminary sector switch detection, the central entity adds together the reported likelihood metrics from each reporting base station to make its final determination on whether the mobile device 106 has indeed sent the SSI (block 228). (Page 12, lines 1-12)

Grounds of Rejection to be Reviewed on Appeal

Claims 1 and 2 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,873,607 ("the *Hamada* reference").

Claims 16-18 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,799,045 ("the *Brouwer* reference").

Claims 3, 5-7, 9-12 and 14-15 stand rejected under 35 U.S.C. §103 based upon the proposed combination of the *Hamada* reference and United States Published Patent Application No. 2002/0111158 ("the *Tee* reference).

Claims 8 and 13 stand rejected under 35 U.S.C. §103 based upon the combination of the *Hamada* reference, the *Tee* reference and the *Brouwer* reference.

Claim 19 stands rejected under 35 U.S.C. §103 based upon the *Brouwer* reference combined with the *Hamada* reference.

ARGUMENT

There is no *prima facie* case of anticipation or obviousness against any of Applicant's claims. The references relied upon by the Examiner have nothing to do with detecting a sector switching indication as included in Applicant's claims.

The rejection of claims 1 and 2 under 35 U.S.C. §102 based upon the *Hamada* reference must be reversed.

The Examiner contends that an access request indicating that a mobile station desires to access a shared channel is the same thing as a sector switching indicator. This interpretation of the *Hamada* reference is unreasonable because it is contrary to the commonly understood meanings of the different terms, "sector switch indicator" on the one hand and "channel access request" on the other hand. When a mobile station desires to access a random access channel as taught in the

Hamada reference, that is a completely different process than a mobile station providing an indication that it desires to switch from one sector to another.

The *Hamada* reference is directed toward limiting or eliminating interference when more than one mobile station desires access to a shared access channel. That has nothing to do with detecting sector switching indicators. Moreover, there is no detection of a sector switching indicator in at least one frame and over a sliding window containing at least two frames in the *Hamada* reference. Nothing in the *Hamada* reference can reasonably be construed to be consistent with Applicant's two-pronged approach to detecting a sector switching indicator.

It is noteworthy that the Examiner points to column 3, lines 63-66, as teaching monitoring a plurality of frames. The access channel described at that point in the *Hamada* reference is closed so that no access requests are made on that channel during that time. Therefore, even if the access request of the *Hamada* reference could reasonably be construed as an SSI (which Applicant denies), no such SSI would be "detected" as required by Applicant's claims because the channel that the Examiner is relying upon for the supposed monitoring of multiple frames is closed. Therefore, the *Hamada* reference cannot reasonably be interpreted to be the same as what is recited in claim 1.

The Examiner relies upon column 10, lines 34-35, and "monitoring a B channel" as teaching "detecting a sector-switching indicator (SSI) in at least one frame and over a sliding window containing at least two frames." What the *Hamada* reference actually teaches in that section is that a mobile station that desires to access a random access channel (i.e., "which intends to issue the access request to the base station 1") is the device that monitors a B channel. The B channel in the *Hamada* reference is used for transmissions from a base station to a mobile station. The mobile station then accesses the random access channel (the R channel) in a succeeding frame. That is not the same thing as detecting an SSI in at least one frame and over a sliding window

containing at least two frames. The Examiner contends that the access request is the SSI. The mobile station issues the access request. The mobile station does not detect the access request. The Examiner, therefore, cannot interpret the mobile station monitoring the B channel as the same thing as detecting an access request (even if the access request could somehow reasonably be construed as a SSI).

It is not possible to read the *Hamada* reference on Applicant's claims. The *Hamada* reference focuses on detecting interference and then limiting or eliminating interference. That is not the same thing as detecting an SSI using a technique consistent with Applicant's claims. There is no anticipation and the rejection under 35 U.S.C. §102 based upon the *Hamada* reference must be reversed.

The rejection of claims 16-18 under 35 U.S.C. §102 based upon the *Brouwer* reference must be reversed.

The Examiner relies upon an SSDT indicator from the *Brouwer* reference as a basis for finding an SSI in the *Brouwer* reference. That is not a reasonable interpretation of the *Brouwer* reference. Column 10, lines 1-10 of the *Brouwer* reference say that the SSDT is an indicator of a power control command. The *Brouwer* reference describes the use of the SSDT indicator ***during*** a diversity handoff. Because the handoff is already in progress, the SSDT cannot be reasonably interpreted as a sector switching indicator. When a diversity handoff is already in progress, a mobile station is in the process of switching from one sector to another. In other words, an SSI would have already been given before the diversity handoff was in progress and before the SSDT indicator is used. The SSDT in column 10 of the *Brouwer* reference is, therefore, not reasonably considered the same as an SSI.

A signal from a mobile station indicating a desire to make a switch is not the same as an SSDT as used in the *Brouwer* reference for determining whether a power control command, which

is used during a handover (e.g., sector switching) process already in progress, was reliable. Moreover, the process in the *Brouwer* reference does not involve preliminary and second switch detection decisions as recited in Applicant's claim 16.

There is no anticipation of any of Applicant's claims based upon the *Brouwer* reference. The rejection under 35 U.S.C. §102 based upon the *Brouwer* reference must be reversed.

The rejection of claims 3,5-7, 9-12 and 14-15 under 35 U.S.C. §103 based upon the proposed combination of the *Hamada* reference and the *Tee* reference must be reversed.

There is no *prima facie* case of obviousness. To begin with, the *Hamada* reference does not teach what the Examiner contends. As explained above, the request for accessing a shared channel from the *Hamada* reference is not the same thing as a sector switching indicator. It has nothing to do with a mobile station's desire to switch sectors. Instead, it only indicates a mobile station's desire to access a shared access channel. Therefore, even if the *Tee* reference were combined with the *Hamada* reference, the result would not be the same as any of Applicant's claims and there is no *prima facie* case of obviousness.

Additionally, there is no motivation for combining the *Hamada* and *Tee* references. Where there is no benefit to a proposed combination, the legally required motivation for making the combination is missing, the combination cannot be made and there is no *prima facie* case of obviousness. The Examiner proposes to add "a final switch detection," "identifying a serving sector," "identifying at least two active set sectors," or the teachings of paragraphs 0074, 0085, 0107, 0108, 0109 or 0110 from the *Tee* reference to the *Hamada* reference. There is no benefit to adding any of these teachings to the *Hamada* reference because none of them provide any beneficial use in connection with the interference detection and control technique of the *Hamada* reference.

Without any benefit, there is no motivation for the proposed combination and no *prima facie* case of obviousness.

Regarding independent claim 5, the "monitoring a plurality of frames on at least one channel associated with at least two active set sectors" limitation is nowhere found even in the proposed combination of the *Hamada* and *Tee* references. That claim limitation cannot be considered the same as monitoring a closed R channel in the *Hamada* reference. There is nothing in the *Hamada* reference that in anyway suggests that the closed R channel that is discussed at the end of column 3 and relied upon by the Examiner is associated with at least two active set sectors. It makes no sense to interpret a closed channel as being associated with more than one sector in an active set or monitoring it for any purpose. A closed channel is just that and it provides no basis for the Examiner's interpretation of the references when attempting to establish a *prima facie* case of obviousness.

The rejection of claim 4 under 35 U.S.C. §103 based upon the proposed combination of the *Hamada* and *Brouwer* references must be reversed.

There is no motivation for combining the *Hamada* and *Brouwer* references. The method in the *Hamada* reference of detecting an access request from a mobile station has no relationship to the technique in the *Brouwer* reference that involves determining whether a power control command is reliable in the middle of a diversity handoff procedure. Because those two approaches are incompatible, there is no benefit to combining pieces of them in an attempt to manufacture a *prima facie* case of obviousness against Applicant's claim 4.

Additionally, there would be no motivation to adding what the Examiner admits is not shown in the *Hamada* reference to the *Hamada* reference. The Examiner admits that the *Hamada* reference does not disclose a preliminary switch detection decision and a final switch detection

decision based on a plurality of preliminary switch detection decisions. There is no reason to add preliminary and final detections in the *Hamada* reference because it is only determining whether a mobile station desires access to a shared channel. Reliability issues in that regard are not presented in a manner that would make a preliminary and final detection of any use in that instance.

Moreover, a request for accessing a shared channel is not the same thing as a switch detection decision. Determining whether a mobile station wants to access a shared channel is not the same thing as determining whether a mobile station has issued a switch indicator. The proposed combination of the *Hamada* and *Brouwer* references cannot possibly establish a *prima facie* case of obviousness against Applicant's claim 4.

The rejection of claims 8 and 13 under 35 U.S.C. §103 based upon the proposed combination of the *Hamada, Tee* and *Brouwer* references must be reversed.

As discussed above, there is no motivation for combining the *Hamada* and *Tee* references. Additionally, even if they could be combined, they do not provide the result that the Examiner contends. The proposed addition of the *Brouwer* reference does not remedy the defects in the base combination of the *Hamada* and *Tee* references. The combination of any two or all three of the *Hamada, Tee* and *Brouwer* references cannot be made.

Even if the combination could be made, the result is not what the Examiner contends for the reasons already provided. There is no *prima facie* case of obviousness against either of Applicant's claims 8 or 13.

The rejection of claim 19 under 35 U.S.C. §103 based upon the proposed combination of the *Brouwer* and *Hamada* references must be reversed.

These references cannot be combined. The power control command reliability check of the *Brouwer* reference will not be enhanced in any way by the interference detection and control

techniques of the *Hamada* reference. Therefore, there is no benefit to making the proposed combination, the legally required motivation for modifying the *Brouwer* reference is missing and there is no *prima facie* case of obviousness.

Additionally, neither the *Brouwer* reference nor the *Hamada* reference teaches what the Examiner contends. The Examiner's interpretation of each reference is unreasonable because it is contrary to the express teachings of each reference.

CONCLUSION

All of Applicant's claims are allowable. The *Hamada* reference does not teach a sector switch indicator nor any technique for detecting one. Similarly, the *Brouwer* reference does not teach a sector switch indicator nor any technique for detecting one. The Examiner is suggesting an unreasonable interpretation of both references and proposing modifications to them that cannot be made. All of the rejections must be reversed.

Respectfully submitted,

CARLSON, GASKEY & OLDS, P.C.

October 26, 2006
Date

David J. Gaskey
Registration No. 37,139
400 W. Maple, Suite 350
Birmingham, MI 48009
(248) 988-8360

CERTIFICATE OF MAILING

I hereby certify that the enclosed **Appeal Brief** is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Mail Stop Appeal Brief – Patents Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on October 26, 2006.

Theresa M. Palmateer

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APPENDIX OF CLAIMS

1. A method of wireless communication, comprising:

monitoring a plurality of frames on a channel; and

detecting a sector switching indicator (SSI) in at least one frame and over a sliding window containing at least two frames.

2. The method of claim 1, further comprising conducting a switch detection decision based on the detecting step.

3. The method of claim 2, wherein the switch detection decision in the conducting step is a final switch detection decision.

4. The method of claim 2, wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises:

forwarding the preliminary switch detection decision to a central entity; and

conducting a final switch detection decision based on a plurality of preliminary switch detection decisions.

5. A method of detecting a sector switching indication (SSI), comprising:

identifying a serving sector;

identifying at least two active set sectors;

monitoring a plurality of frames on at least one channel associated with said at least two active set sectors; and

detecting the SSI in at least one frame and in a sliding window containing at least two frames.

6. The method of claim 5, further comprising conducting a switch detection decision based on the detecting step.

7. The method of claim 6, wherein the switch detection decision in the conducting step is a final switch detection decision.

8. The method of claim 6, wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises conducting a final switch detection decision based on a plurality of preliminary switch detection decisions corresponding to said at least one active set sector.

9. The method of claim 6, further comprising:

comparing a pilot signal-to-noise ratio for each of said active set sectors with a signal-to-noise ratio threshold; and

indicating an acceptable signal link if the pilot signal-to-noise ratio is greater than the signal-to-noise ratio threshold to reflect a confidence level in the switch detection decision associated with each of said active set sectors.

10. The method of claim 5, wherein the step of identifying the serving sector comprises comparing energy levels of transmissions received a plurality of sectors, wherein the serving sector has the highest energy level out of said plurality of sectors.

11. The method of claim 5, further comprising updating a frame-based detection history each time the detection step detects the SSI in said at least one frame.

12. The method of claim 5, wherein the detecting step detects the SSI in the sliding window by

obtaining a serving metric corresponding to a normal channel quality report for the serving sector; and

obtaining a target metric corresponding to a highest probability that the SSI has been sent to any one of said active set sectors.

13. The method of claim 12, further comprising:

accumulating a plurality of target metrics over the sliding window;

selecting a largest target metric out of the plurality of target metrics; and

indicating a likelihood that the SSI has been sent if the largest target metric is above the serving metric plus a threshold.

14. The method of claim 5, further comprising estimating a sector switch completion time.

15. The method of claim 5, further comprising:

directing the serving sector to release the mobile device at a selected time; and

notifying the active set sectors of the selected time.

16. A method of detecting a sector switching indication (SSI), comprising:

conducting a plurality of switch detection decisions in a baseband processor stage, wherein each preliminary switch detection decision corresponds to one of a plurality of active set sectors;

forwarding the plurality of preliminary switch detection decisions to a base station stage;

conducting a second switch detection decision based on the plurality of preliminary switch detection decisions in the base station stage; and

determining whether the SSI has been sent based on the second switch detection decision in the base station stage.

17. The method of claim 16, wherein the second switch detection decision is a final switch detection decision.

18. The method of claim 16, wherein the step of conducting the second switch detection decision comprises conducting a plurality of second switch detection decisions, and wherein the determining step comprises:

conducting a third switch detection decision based on the plurality of second switch detection decisions; and

determining whether the SSI has been sent from the third switch detection decision.

19. The method of claim 16, wherein each of said plurality of switch detection decisions in said conducting step is conducted by:

monitoring a plurality of frames on a channel; and

detecting the SSI in one of frames and in a sliding window containing at least two frames.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.